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MORGAN LEWIS & BOCKIUS LLP  
1111 PENNSYLVANIA AVENUE NW  
WASHINGTON, DC 20004

EXAMINER
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REDDY, KARUNA P

ART UNIT	PAPER NUMBER
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1796

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/583,268

**Applicant(s)**

O'DONNELL ET AL.

**Examiner**

KARUNA P. REDDY

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-22 is/are rejected.
- 7) ☒ Claim(s) 14 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date 6/16/2006 and 4/5/2007
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

1. Preliminary amendment filed on 1/23/2008 is made of record. Claims 1 and 6 are amended; and claim 2 is cancelled. Accordingly, claims 1 and 3-22 are currently pending in the application.

#### ***Specification***

2. The title of invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title of present invention "Process" is generic. Applicant is advised to modify the title to a more descriptive one such as "Process for preparing an encapsulated particulate solid".

#### ***Claim Objections***

3. Claims 14 and 16 are objected to because of the following informality: Claim 14 (lines 1-2) recites "obtained or obtainable by" and should read "obtained by".

The use of phrase "obtainable by" renders unclear whether other encapsulated particulate solid made using other specified processes are also within the claimed scope. If applicant is intending to specify an encapsulated particulate solid which is produced by the recited process, then the phrase "obtained by" should be used.

Claim 16 recites "20mPa.s" and should read "20 mPa.s".

Appropriate clarification and/or correction are required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the compound" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the resultant modified particulate solid" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 6, 9-10, 12-15 and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Waki et al (WO 2003/097753) as evidenced by Muehlbauer et al (US 5,563,226) and Charmot et al (US 6,380,335 B1).

It is noted that WO 2003/097753 (WO) is being utilized for date purposes. However, since WO is not in English, US equivalent for WO, namely, Waki et al (US 2004/0242726 A1) is referred to in the body of the rejection below. All column and line citations are to the US equivalent.

Waki et al disclose in example 4 a process for preparing a pigment dispersion comprising kneading (reads on mechanical treatment to reduce particle size of instant claim 13) a mixture of 20 parts of ethyl methacrylate - methacrylic acid copolymer (i.e. reads on polyvinyl dispersant) with 100 parts of pigment green (i.e. reads on particulate solid). The ethyl methacrylate - methacrylic acid copolymer has an acid value of 120 mg KOH/g of resin (paragraph 0181). The methacrylic acid has a carboxyl group and reads on crosslinkable group of the polyvinyl dispersant. To 42 parts of the obtained product is added 55 parts of water (paragraph 0182) which reads on liquid vehicle. The dispersion liquid has a solid content of 26% (paragraph 0152). 5 parts of 30% polycarbodiimide type crosslinking agent, which is completely water soluble is added to the dispersion liquid and the mixture was stirred at 90°C for 5 hours to crosslink the resin in dispersion liquid (paragraph 0153). The parts by weight of pigment, polyvinyl dispersant, crosslinking agent, water, other liquid components such as glycerin, isopropyl alcohol and the solids content, in example 4, read on the weight ratios recited in instant claim 12, and the liquid vehicle of claim 17. Evidence that ethyl methacrylate has a log P value of 1.59 (col. 5, line 36) and methacrylic acid has a log P value of 0.93 (col. 22, lines 15-18) comes from Muehlbauer et al and Charmot et al, respectively. Hence, it is the examiner's position that polyvinyl dispersant of Waki et al has the claimed log P value of less than 1.8 and from 0 to 1.7. Given that the process limitations are met, it is the examiner's position that pigment is encapsulated within the crosslinked polyvinyl

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dispersant and the obtained product is an encapsulated particulate solid. The ink composition is charged into a cartridge (see claim 10 of Waki et al). The ink jet recording comprises printing by discharging the ink composition from ink jet (see claim 9 of Waki et al). The ink composition comprises a resin having a urethane bond and/or an amide bond (abstract). Examples of compound having an amide bond and/or urethane bond include NeoRez R-960®, Hydran AP-30®, NeoRez R-9320® (paragraph 0066) which read on the binder of instant claim 22.

Therefore, Waki et al as evidenced by Muehlbauer et al and Charnot et al anticipate the present claims.

***Claim Rejections - 35 USC § 102/103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 5 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Waki et al (WO 2003/097753) as evidenced by Muehlbauer et al (US 5,563,226) and Charmot et al (US 6,380,335 B1).

The discussion with respect to Waki et al as evidenced by Muehlbauer et al and Charmot et al in paragraph 7 above is incorporated here by reference.

Waki et al, Muehlbauer et al and Charmot et al are silent with respect to the Z-average particle size of encapsulated particulate solid; and viscosity of composition comprising the encapsulated particulate solid

However, given that process of forming the particulate solid and ink composition comprising the particulate solid, in Waki et al as evidenced by Muehlbauer et al and Charmot et al, is substantially similar to that of instant claims, it is the examiner's position that presently claimed Z-average particle size of encapsulated particulate solid and the viscosity of 20 mPa.s at 25°C for composition comprising the encapsulated particulate solid are inherently present in the encapsulated particulate solid and composition prepared by the process of Waki et al as evidenced by Muehlbauer et al and Charmot et al. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705,709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In light of the above, it is clear that Waki et al as evidenced by Muehlbauer et al and Charmot et al anticipate the present claims.

Alternatively, presently claimed Z-average particle size and viscosity would have been present once the encapsulated particulate solid and composition comprising the encapsulated particulate solid are prepared by the process of Waki et al as evidenced by Muehlbauer et al and Charmot et al.

***Claim Rejections - 35 USC § 103***

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Waki et al (WO 2003/097753) as evidenced by Muehlbauer et al (US 5,563,226) and Charmot et al (US 6,380,335 B1).

The discussion with respect to Waki et al as evidenced by Muehlbauer et al and Charmot et al in paragraph 7 above is incorporated here by reference.

Waki et al, Muehlbauer et al, and Charmot et al fail to disclose a process wherein the reaction is performed at a temperature of less than 60°C.

However, Waki et al teach in the general disclosure that a crosslinking agent crosslinkable at a low temperature of about 0 to 100°C is preferred as a crosslinking agent (paragraph 0097). Therefore, in light of the teachings in Waki et al, it would have been obvious to one skilled in art at the time invention was made to use any temperature between 0°C and 60°C in the process of Waki et al as evidenced by Muehlbauer et al and Charmot et al, because Waki et al recognizes the importance of crosslinking at low temperatures, and one skilled in art at the time invention was made would have expected temperatures of 0°C to 60°C to work in the crosslinking reaction of polyvinyl dispersant and crosslinking agent in Waki et al as evidenced by Muehlbauer et al and Charmot et al, motivated by expectation of success.

12. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waki et al (WO 2003/097753) as evidenced by Muehlbauer et al (US 5,563,226) and Charmot et al (US 6,380,335 B1) as applied to claim 1 above, and further in view of Peters et al (US 6, 258, 888 B1).



The discussion with respect to Waki et al as evidenced by Muehlbauer et al and Charmot et al in paragraph 7 above is incorporated here by reference.

Waki et al as evidenced by Muehlbauer et al and Charmot et al are silent with respect to poly vinyl dispersant having at least one keto, aldehyde or beta-diketoester crosslinkable groups; and the crosslinking agent having at least one amine, imine, hydrazide or thiol crosslinking group.

However, Waki et al in the general disclosure teach that examples of crosslinking agents include a carbonyl group-reactive type (generic to aldehyde or beta-diketoester crosslinkable groups of claim 7) such as hydrazide (reads on crosslinking agent of claim 8). Furthermore, Peters et al teach polymeric material useful for inks (abstract) wherein the polymer possesses functional groups for imparting crosslinkability to the composition (col. 14, lines 7-11). The functional groups on polymers could include keto or aldehyde carbonyl groups and the subsequently formulated crosslinker could be a polyhydrazide (col. 14, lines 21-25). Therefore, in light of the combined teachings in Waki et al and Peters et al, it would have been obvious to one skilled in art at the time invention was made to use a keto and aldehyde species taught in Peters et al because Waki et al in the general disclosure teach that carbonyl-reactive groups present in the polymer can be crosslinked with crosslinking agents such as hydrazides and Peters et al teach ink composition comprising the carbonyl containing reactive groups such as keto and aldehyde for hydrazide crosslinking agents, and one skilled in art would expect the species taught in Peters et al to work in the process for preparing encapsulated particulate solid of Waki et al as evidenced by Muehlbauer et al and Charmot et al.

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Waki et al (WO 2003/097753) as evidenced by Muehlbauer et al (US 5,563,226) and Charmot et al (US 6,380,335 B1) as applied to claim 15 above, and further in view of Yadav et al (US 2003/0212179 A1)

The discussion with respect to Waki et al as evidenced by Muehlbauer et al and Charmot et al in paragraph 7 above is incorporated here by reference.

Waki et al as evidenced by Muehlbauer et al and Charmot et al are silent with respect to isolating the particulate solid from the liquid medium.

However, Yadav et al teach ink composition comprising inorganic nanofillers (abstract). The filler (i.e. reads particulate solid) is removed from the solvent by drying, filtration, centrifugation or any other method appropriate for solid-liquid separation (paragraph 0047). Therefore, in light of the teachings in Yadav et al, it would have been obvious to separate the particulate solid from liquid, after the particulate solid is encapsulated by the polyvinyl dispersant crosslinked with crosslinking agent - in the process of Waki et al as evidenced by Muehlbauer et al and Charmot et al, using any of the well known solid-liquid separation procedures to obtain the particulate solid in dry form (i.e. isolating the encapsulated particulate solid), If encapsulated particulate solid in dry form is desired by one skilled in art at the time invention was made.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARUNA P. REDDY whose telephone number is (571)272-6566. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. P. R./

Examiner, Art Unit 1796

/Vasu Jagannathan/

Supervisory Patent Examiner, Art Unit 1796